

Lower Western Shore Basin Summary

Executive Summary
1985-2003 data, February 2005

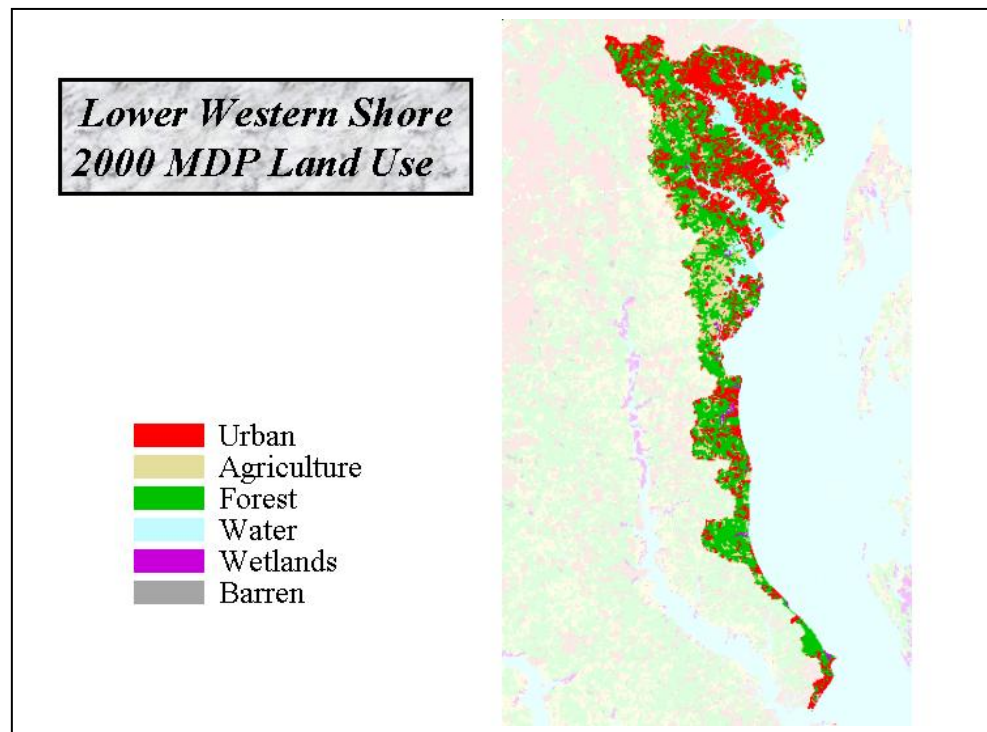
The Lower Western Shore Basin is still almost half forested (46 percent), but developed urban lands (industrial, residential, and institutional) are encroaching (40 percent) as more and more forested areas are developed, particularly in the northern part of the watershed. Point sources (municipal wastewater treatment plants and industrial outputs) and runoff from developed areas contribute most of the nitrogen and phosphorus. Runoff from developed lands is playing a bigger role as more and more of the basin is covered by impervious surfaces due to development. Bay grasses have improved in the Magothy and Severn, but still do not meet the goal in any of the Lower Western Shore tributaries.

LOADINGS

(based on watershed model)

Modeled nitrogen, phosphorus, and sediment loadings have decreased.

- Total nitrogen loadings have decreased somewhat (18 percent) from 1985 to 2002 (down from 2 to 1.7 million pounds). Point sources and urban sources each contribute about 40 percent of the nitrogen.
- Total phosphorus has been cut in half from 1985 to 2002 (down from 0.26 to 0.12 million pounds). Urban runoff contributes most of the phosphorus (63 percent).
- Sediment loadings have declined only about 14 percent from 1985 to 2002 (down from 21,000 tons to 18,000 tons). Even though agricultural lands only make up a small portion of the watershed, they contribute almost 60 percent of the sediment load.



LONG-TERM TIDAL WATER QUALITY (based on monitoring concentration data)

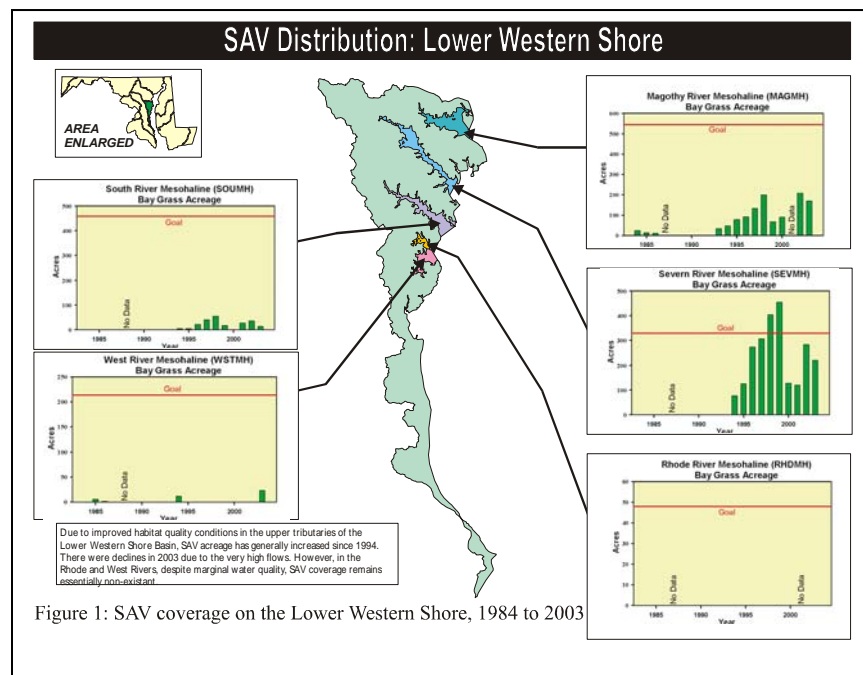
Significant decreases in phosphorus loadings have translated into significant decreases in water column phosphorus. However, despite modest decreases in nitrogen loadings, nitrogen

levels have not significantly declined in the water column. Algae levels, water clarity, and bottom dissolved oxygen levels remain poor in many areas.

- Phosphorus levels have declined in the Lower Western Shore, but nitrogen levels generally have not declined. Phosphorus and nitrogen levels are relatively fair to poor.
- Sediments have declined in the Lower Western Shore, and are relatively good to fair as compared to the earlier baseline period. However, water clarity remains poor except in the Magothy River, and water clarity has worsened in the Rhode River.
- Algae levels have not decreased, and they remain poor with far too much algae.
- Dissolved oxygen levels are poor (< 2 mg/L) at the Magothy, Severn, and South River long-term stations.
- Continuous monitoring data area and water quality mapping are available for the Lower Western Shore tributaries at www.eyesonthebay.net.

BIOLOGICAL and ECOSYSTEM MONITORING

Bay grasses and biological communities are.



- Bay grass beds have grown in the Magothy and dramatically in the Severn.
- Bay grass beds remain small to non-existent in the South, West, and Rhode Rivers, and do not meet the acreage goal in any of the Lower Western Shore tributaries.
- Benthic community condition was best in the Severn River and worst in the Magothy and South Rivers. In the Severn, however, an area of degradation and

worsening condition exists in the middle portion of the estuary, consistent with worsening dissolved oxygen conditions in that area.

- No recent data are available for the zooplankton community due to budget cuts.
- During the winter all areas are largely nutrient saturated (light and temperature limited). In the South and Rhode Rivers, the summer and fall are largely nitrogen limited. In the West, Magothy, and Severn Rivers, summers are largely nitrogen limited. In fall, phosphorus limitation is important in the Magothy River.

For more detailed information see the complete basin summary at:

http://www.dnr.state.md.us/bay/tribstrat/basin_summaries.html.